Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

3600: Research, Development, Test & Evaluation, Air Force

PE 0401134F: Large Aircraft InfraRed Counter Measures (LAIRCM)

BA 7: Operational Systems Development

,											
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	22.490	26.784	17.227	0.000	17.227	7.535	7.793	5.852	5.935	Continuing	Continuing
674942: Large Aircraft Infrared Counter Measures (LAIRCM)	22.490	26.784	17.227	0.000	17.227	7.535	7.793	5.852	5.935	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures System (LAIRCM) is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the infrared (IR) Man-Portable Air-Defense Systems (MANPADS) missile threat.

The current LAIRCM system configuration [AN/AAQ-24V] consists of an ultra-violet missile-warning sensor (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and turrets per aircraft is determined by the size and signature of the aircraft. This system is fully automatic following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) - LAIRCM ORD 314-92, validated on 3 Aug 98. The system was first fielded in May 03 on the C-17 aircraft.

The Baseline program development is complete and consists of the small laser transmitter assembly, ultra-violet MWS, processor, and Control Interface Unit (CIU) and a repeater (on some aircraft) to meet the need for advanced IR countermeasures. The Guardian Laser Transmitter Assembly (GLTA) is an upgrade to the baseline transmitter equipment. First production GLTA delivery occurred in June FY08.

Development of the Next Generation Missile Warning System (NexGen MWS) is new hardware that improves capability. Baseline equipment (ultra-violet MWS) will be retrofitted with the NexGen MWS as it becomes available. DT/OT will be conducted in FY10 with IOT&E in FY11.

LAIRCM upgrades - This includes continuous hardware and software upgrades and testing of the LAIRCM system to maintain concurrency with new and emerging threats. Theses upgrades include, but are not limited to capability, hardware and/or software, upgrades to current LAIRCM LRUs for capabilities like engagement reporting (ER), Closed Loop Infrared Countermeasure (CLIRCM) and other newly emerging capabilities to upgrade/update system threat defeating ability. It also includes development/integration of new LRUs/LRU variants into the current LAIRCM system based on newly emergent technology. Upgrades to the capability of LAIRCM support/test equipment are captured here.

Group A integration and testing as well as integration support to incorporate LAIRCM on new platforms including C-130J, multiple potential C-130H/J variants as defined by AMC and AFSOC, and multiple potential tanker aircraft variants as defined by AMC will be accomplished.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY
3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

BA 7: Operational Systems Development

DATE: February 2010

R-1 ITEM NOMENCLATURE
PE 0401134F: Large Aircraft InfraRed Counter Measures (LAIRCM)

LAIRCM is Budget Activity 7, Operational Systems Development, as it is an electronic countermeasures system upgrade to existing weapons systems.

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	<u>FY 2011 Total</u>
Previous President's Budget	36.500	31.784	0.000	0.000	0.000
Current President's Budget	22.490	26.784	17.227	0.000	17.227
Total Adjustments	-14.010	-5.000	17.227	0.000	17.227
 Congressional General Reductions 		0.000			
 Congressional Directed Reductions 		0.000			
 Congressional Rescissions 	0.000	0.000			
 Congressional Adds 		0.000			
 Congressional Directed Transfers 		0.000			
 Reprogrammings 	0.000	0.000			
 SBIR/STTR Transfer 	0.000	0.000			
 Other Adjustments 	-14.010	-5.000	17.227	0.000	17.227
SBIR/STTR Transfer	0.000	0.000	17.227	0.000	17.227

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 674942: Large Aircraft Infrared Counter Measures (LAIRCM)

Congressional Add: \$4.388M to integrate LAIRCM onto AFSOC HC/MC-130 aircraft. Unavailability of a/c has driven integration start to the right, these funds were used to procure h/w for the integration program.

II.	
Congressional Add Subtotals for Project: 674942	
Congressional Add Totals for all Projects	

FY 2009	FY 2010
4.388	0.000
4.388	0.000
4.388	0.000

Change Summary Explanation

FY09: Re-phasing of \$4.388M A/C integration program for LAIRCM on C-130J and AFSOC A/C from FY09 to FY11.

FY09: Other Adjustments: \$0.111M for Congressional rescissions, \$1.002M SBIR/STTR transfer, and \$12.909M for reprogrammings (Total \$14.010M).

FY10: Other Adjustments: \$5.000M for Congressional Program Reductions

Exhibit R-2A, RDT&E Project Just	orce						DATE: Feb	ruary 2010							
APPROPRIATION/BUDGET ACTIV 3600: Research, Development, Test BA 7: Operational Systems Develop	& Evaluatio	R-1 ITEM NOMENCLATURE PE 0401134F: Large Aircraft InfraRed Counter Measures (LAIRCM) PROJECT 674942: Large Aircraft Infrared Measures (LAIRCM)					2: Large Aircraft Infrared Counter								
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	=						
674942: Large Aircraft Infrared Counter Measures (LAIRCM)	22.490	26.784	17.227	0.000	17.227	7.535	7.793	5.852	5.935	Continuing	Continuing				
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0 0						

A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures System (LAIRCM) is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the infrared (IR) Man-Portable Air-Defense Systems (MANPADS) missile threat.

The current LAIRCM system configuration [AN/AAQ-24V] consists of an ultra-violet missile-warning sensor (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and turrets per aircraft is determined by the size and signature of the aircraft. This system is fully automatic following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) - LAIRCM ORD 314-92, validated on 3 Aug 98. The system was first fielded in May 03 on the C-17 aircraft.

The Baseline program development is complete and consists of the small laser transmitter assembly, ultra-violet MWS, processor, and Control Interface Unit (CIU) and a repeater (on some aircraft) to meet the need for advanced IR countermeasures. The Guardian Laser Transmitter Assembly (GLTA) is an upgrade to the baseline transmitter equipment. First production GLTA delivery occurred in June FY08.

Development of the Next Generation Missile Warning System (NexGen MWS) is new hardware that improves capability. Baseline equipment (ultra-violet MWS) will be retrofitted with the NexGen MWS as it becomes available. DT/OT will be conducted in FY10 with IOT&E in FY11.

LAIRCM upgrades - This includes continuous hardware and software upgrades and testing of the LAIRCM system to maintain concurrency with new and emerging threats. Theses upgrades include, but are not limited to capability, hardware and/or software, upgrades to current LAIRCM LRUs for capabilities like engagement reporting (ER), Closed Loop Infrared Countermeasure (CLIRCM) and other newly emerging capabilities to upgrade/update system threat defeating ability. It also includes development/integration of new LRUs/LRU variants into the current LAIRCM system based on newly emergent technology. Upgrades to the capability of LAIRCM support/test equipment are captured here.

Group A integration and testing as well as integration support to incorporate LAIRCM on new platforms including C-130J, multiple potential C-130H/J variants as defined by AMC and AFSOC, and multiple potential tanker aircraft variants as defined by AMC will be accomplished.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT	
3600: Research, Development, Test & Evaluation, Air Force	PE 0401134F: Large Aircraft InfraRed Counter	674942: La	rge Aircraft Infrared Counter
BA 7: Operational Systems Development	Measures (LAIRCM)	Measures ((LAIRCM)
		•	

LAIRCM is Budget Activity 7, Operational Systems Development, as it is an electronic countermeasures system upgrade to existing weapons systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Continue integration of LAIRCM system onto new a/c for AMC & AFSOC customers.	18.102	26.784	17.227	0.000	17.227
FY 2009 Accomplishments: In FY 2009: Initiated LAIRCM integration program onto AMC C-130J. Began planning/study of EC-130J integration, including some trial installation and flight test h/w procurements. Completed future system requirements study for dealing with expanding threat environment, and updating to advancing technologies. Initiated h/w and s/w upgrade program for current LAIRCM system equipment to new s/w architecture including additional Engagement Reporting capability. Identified/studied potential new technologies for new/future LRU/SRUs to be added to the system. Continued recurring jam code development and testing program.					
FY 2010 Plans: In FY 2010: Continuing LAIRCM integration program onto AMC C-130J. Continue planning/study of multiple AFSOC EC-130J variants LAIRCM integration, including some trial installation and flight test h/w procurements due to changing user requirements. Identify/study potential new technologies for new/future LRU/SRUs to be added to the system. Continue h/w and s/w upgrade program of current LAIRCM system equipment to new s/w architecture including additional Engagement Reporting capability. Continue recurring jam code development and testing program.					
FY 2011 Base Plans: In FY 2011: Complete LAIRCM integration program onto AMC C-130J and on version of AFSOC EC-130J. Re-start study/integration of LAIRCM onto AFSOC AC-130U, initiated with FY09 Congressional Add funding. Continue planning/study/integration of additional AFSOC EC-130J variants, including some trial installation and flight test h/w procurements. Begin development/ integration of potential new technologies for new/future LRU/SRUs to be added to the system. Begin development of Closed Loop Infrared Countermeasures (CLIRCM) capabilities. Continue h/w and s/w					

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Exhibit R-2A, RDT&E Project Justi	ification: PB	2011 Air Fo	rce						DATE: Feb	ruary 2010			
APPROPRIATION/BUDGET ACTIV 3600: Research, Development, Test BA 7: Operational Systems Develop	& Evaluation	, Air Force		R-1 ITEM N 0 PE 0401134 <i>Measures (L</i>	F: Large Air	_	ed Counter		ROJECT 4942: Large Aircraft Infrared Counter easures (LAIRCM)				
B. Accomplishments/Planned Pro	gram (\$ in N	lillions)	'					'					
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
upgrade program for current LA Engagement Reporting capabili													
FY 2011 OCO Plans: In FY 2011 OCO: N/A													
			Accomplish	ments/Plann	ed Program	s Subtotals	18.102	26.784	17.227	0.000	17.22		
							FY 2009	FY 2010]				
							4.388	0.000	_				
Congressional Add: \$4.388M to inte has driven integration start to the rig FY 2009 Accomplishments: In FY 2009: Integration of LAIR	ht, these fun	ds were use	d to procure	h/w for the i									
FY 2010 Plans: In FY 2010: N/A													
				Congre	essional Add	ls Subtotals	4.388	0.000					
C. Other Program Funding Summa	ary (\$ in Mill	ions)											
			FY 2011	FY 2011	FY 2011					Cost To			
Line Item	FY 2009	FY 2010	<u>Base</u>	<u>000</u>	<u>Total</u>	FY 2012	FY 2013	FY 2014		Complete			
• PE 0504343F: (APAF), C-130 (AFRC)	54.958	1.033	1.019	0.000	1.019	1.034	1.052	1.076	1.090	0.000	0.00		
• PE 0401134F: <i>Air Force (APAF),</i> C-17	97.494	267.937	58.509	224.450	282.959	44.012	172.444	175.377	178.652	0.000	0.00		
	79.096	86.400	0.000	132.000	132.000	0.000	0.000	0.000	0.000	0.000	0.00		

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DATE: February 2010

5.451

8.791

0.000

0.000

0.000

0.000

-											
APPROPRIATION/BUDGET ACTI	R-1 ITEM NO	OMENCLAT	URE	PROJECT							
3600: Research, Development, Test & Evaluation, Air Force					F: Large Air	craft InfraRe	d Counter	674942: Large Aircraft Infrared Counter			
BA 7: Operational Systems Development					AIRCM)			Measures (LAIRCM)			
C. Other Program Funding Sumr	mary (\$ in Milli	ions)									
		-	FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	Base	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
• PE 0401134F (1): Air Force										-	
(APAF), C-130											

78.522

55.339

3.213

42.685

3.234

8.485

5.351

8.630

73.400

0.000

D. Acquisition Strategy

(APAF), C-5

(APAF), C-130J

• PE 0401134F (2): Air Force

• PE 0401134F (3): Air Force

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

109.335

9.000

76.620

0.000

5.122

55.339

The LAIRCM SDD contract was awarded on 28 Sep 01 as a CPAF contract. An IDIQ contract for LAIRCM production hardware and support was awarded in May 06. Hardware and software upgrades will be awarded as separate delivery orders under the IDIQ and other contracts.

The Next Generation Missile Warning System (NextGen MWS) contracts for a Systems Design and Development (SDD) competition were awarded to Northrop Grumman and Lockheed Martin in Jun 04. Both contractors developed, tested and integrated NextGen MWS prototypes during the SDD competition and a source selection (SS) for production was completed. A Milestone C decision was made in May 08. Contract award occurred Oct 08. Integration of the NextGen MWS production hardware will be accomplished with the NextGen MWS production contractor and the platform Group A integrator for the various LAIRCM equipped platforms. DT/OT will be completed in FY10.

Integration of the LAIRCM subsystems on C-130 (non J) variants is accomplished by Northrop Grumman. The contract for AC-130H integration was awarded in FY07. Contracts were awarded to Lockheed Martin and Northrop Grumman for a C-130J LAIRCM integration study in FY07. Contracts for the design, integration and test of LAIRCM on the C-130J were awarded to Lockheed Martin in 4Q FY09 and Northrop Grumman in 1Q FY10.

LAIRCM upgrades - This includes continuous hardware and software upgrades and testing of the LAIRCM system to maintain concurrency with new and emerging threats. Theses upgrades include, but are not limited to capability, hardware and/or software, upgrades to current LAIRCM LRUs for capabilities like engagement reporting (ER), Closed Loop Infrared Countermeasure (CLIRCM) and other newly emerging capabilities to upgrade/update system threat defeating ability. It also includes development/integration of new LRUs/LRU variants into the current LAIRCM system based on newly emergent technology. Upgrades to the capability of LAIRCM support/test equipment is captured here.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0401134F: Large Aircraft InfraRed Counter Measures (LAIRCM)	PROJECT 674942: Large Aircraft Infrared Counter Measures (LAIRCM)		
E. Performance Metrics				
Please refer to the Performance Base Budget Overview Book for Force performance goals and most importantly, how they contrib		nd how those resources are contributing to Air		

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force

R-1 ITEM NOMENCLATURE

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

PE 0401134F: Large Aircraft InfraRed Counter

PROJECT

3600: Research, Development, Test & Evaluation, Air Force 674942: Large Aircraft Infrared Counter BA 7: Operational Systems Development Measures (LAIRCM)

Measures (LAIRCM)

Product Development (\$ in Millions)

•	•	,				FY 20		FY 2		FY 2011			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2 Cost	Award Date	Cost	Award Date	Cost	Award Date	Total Cost	Cost To	Total Cost	Target Value of Contract
SDD Phase I	Various/ Various	Various Various	111.158	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
EC-130J Integration	SS/CPFF	Northrop Grumman Rolling Meadows, IL	0.808	0.750	Mar 2010	0.989		0.000		0.989	Continuing	Continuing	0.000
AC-130H Integration	SS/CPFF	Northrop Grumman Rolling Meadows, IL	9.223	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
AC-130U Integration	SS/CPFF	Northrop Grumman Rolling Meadows, IL	4.388	0.000		0.250		0.000		0.250	Continuing	Continuing	0.000
Next Generation Missile Warning Sensor Integration	SS/CPAF	Northrop Grumman Rolling Meadows, IL	17.794	0.949	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	0.000
Next Generation Missile Warning Sensor Development Phase 1	SS/CPFF	Northrop Grumman Rolling Meadows, IL	34.006	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Next Generation Missile Warning Sensor Development Phase II	SS/CPFF	Lockheed Martin Orlando, FL	11.146	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
GLTA Development	SS/CPFF	Northrop Grumman	44.380	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0401134F: Large Aircraft InfraRed Counter

Measures (LAIRCM)

PROJECT

674942: Large Aircraft Infrared Counter

Measures (LAIRCM)

Product Development (\$ in Millions)

				FY 2	2010	FY 20 Bas		FY 2		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Rolling Meadows, IL											
C-5B Development & Integration	SS/CPFF	Lockheed Martin Marietta, GA	27.051	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
C-130J Development & Integration	SS/CPAF	Lockheed Martin Marietta, GA	6.569	11.358	Dec 2009	4.542		0.000		4.542	Continuing	Continuing	0.000
LAIRCM Hardware and Software upgrades	SS/CPFF	Northrop Grumman Rolling Meadows, IL	14.206	9.105	Jun 2010	7.293		0.000		7.293	Continuing	Continuing	0.000
	Subtotal 280.72		280.729	22.162		13.074		0.000		13.074			0.000

Remarks

FY09 funding for MC-130H is Congressional Add Funding - contract award date TBD.

Support (\$ in Millions)

••	,												
		FY 2010			Y 2011 Base		FY 2011 OCO						
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
654 AESS	Various/ Various	Various Various	23.150	0.553		0.555		0.000		0.555	Continuing	Continuing	0.000
		Subtotal	23.150	0.553		0.555		0.000		0.555			0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0401134F: Large Aircraft InfraRed Counter

Measures (LAIRCM)

PROJECT

674942: Large Aircraft Infrared Counter

Measures (LAIRCM)

Support (\$ in Millions)

				FY 2	2010		2011 ise		2011 CO	FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Test and Evaluation (\$ in Millions)

	•	·		FY 20)10	FY 2 Ba		FY 2	2011 CO	FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Various Gov't Test Organizations	Various/ Various	Various Various	14.275	4.069		3.598		0.000		3.598	Continuing	Continuing	0.000
	,	Subtotal	14.275	4.069		3.598		0.000		3.598			0.000

Remarks

	Total Prior Years Cost	FY 2010		2011 ise	FY 2	2011 CO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	318.154	26.784	17.227		0.000		17.227			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0401134F: Large Aircraft InfraRed Counter

Measures (LAIRCM)

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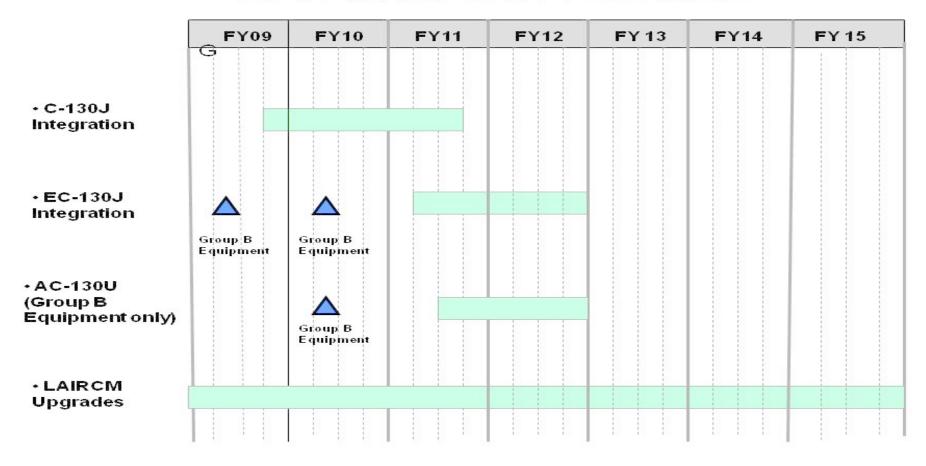
PROJECT

674942: Large Aircraft Infrared Counter

DATE: February 2010

Measures (LAIRCM)

LAIRCM SCHEDULE



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force	DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: Research, Development, Test & Evaluation, Air Force	PE 0401134F: Large Aircraft InfraRed Counter	674942: Large Aircraft Infrared Counter
BA 7: Operational Systems Development	Measures (LAIRCM)	Measures (LAIRCM)

Schedule Details

	Start		E	nd
Event	Quarter	Year	Quarter	Year
C-130J Integration	4	2009	3	2011
EC-130J Group B Equipment/Integration	2	2009	4	2011
AC-130U Group B Equipment/Integration	2	2010	4	2011
LAIRCM Upgrades	1	2009	4	2011